

IN SERVICE PROGRAMMABLE LOGIC ARRAYS WITH LOW TUNNEL  
BARRIER INTERPOLY INSULATORS

Abstract of the Disclosure

5                    Structures and methods for in service programmable logic arrays with low  
tunnel barrier interpoly insulators are provided. The in-service programmable logic  
array includes a first logic and a second logic plan having a number of logic cells  
arranged in rows and columns that are interconnected to produce a number of logical  
outputs such that the in service programmable logic array implements a logical  
10                  function. The logic cell includes a first source/drain region and a second  
source/drain region separated by a channel region in a substrate. A floating gate  
opposing the channel region and is separated therefrom by a gate oxide. A control  
gate opposes the floating gate. The control gate is separated from the floating gate  
by a low tunnel barrier intergate insulator. The low tunnel barrier intergate insulator  
15                  includes a metal oxide insulator selected from the group consisting of PbO, Al<sub>2</sub>O<sub>3</sub>,  
Ta<sub>2</sub>O<sub>5</sub>, TiO<sub>2</sub>, ZrO<sub>2</sub>, Nb<sub>2</sub>O<sub>5</sub> and/or a Perovskite oxide tunnel barrier.

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